Report	Preliminary Ecological Appraisal
Site Name	63 Street End Lane, Chichester
Author(s)	Leah Murphy
Checked by	Darla Brown BSc (Hons)
Client	Kad Properties Limited
Date of Issue	16th May, 2023
Status	FINAL for submission

Ecosupport Ltd K4 Keppel, Daedalus Park, Daedalus Drive, Lee-on-the-Solent, Hampshire, PO13 9FX
T: 01329 832841 info@ecosupport.co.uk www.ecosupport.co.uk

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Ecosupport Ltd K4 Keppel, Daedalus Park, Daedalus Drive, Lee-on-the-Solent, Hampshire, PO13 9FX
T: 01329 832841 info@ecosupport.co.uk www.ecosupport.co.uk

Ecosupport Ltd K4 Keppel, Daedalus Park, Daedalus Drive, Lee-on-the-Solent, Hampshire, PO13 9FX
T: 01329 832841 info@ecosupport.co.uk www.ecosupport.co.uk

Executive Summary

Ecosupport Ltd were instructed by Kad Properties Limited to carry out a Preliminary Ecological Appraisal (PEA) of the existing glasshouses and strip of land located to the South West of Street End Lane, Chichester. This was to identify any potentially important ecological features that may be affected by a proposed development on site. As part of this assessment, the following surveys were undertaken:

- Phase 1 habitat survey (May, 2023)
- Preliminary roost assessment (buildings & trees) (May, 2023)

The following important ecological features were identified on site following the conclusion of the above survey work and may be subject to adverse impacts in the absence of suitable mitigation / compensation:

- Negligible potential for roosting bats within the buildings
- Low potential for roosting bats within the trees
- Moderate potential for reptiles
- Negligible potential for Great Crested Newts
- Low potential for Dormice
- Moderate Potential for breeding birds within the trees
- Potential for foraging and commuting Badgers
- Site within nutrient impact area and recreational zone of impact for Solent designated sites

Recommendations are made within chapter 6 for further survey work (where considered necessary) along with mitigation and enhancement measures.

Ecosupport Ltd K4 Keppel, Daedalus Park, Daedalus Drive, Lee-on-the-Solent, Hampshire, PO13 9FX
T: 01329 832841 info@ecosupport.co.uk www.ecosupport.co.uk

1.0 INTRODUCTION

1.1 Brief

Ecosupport Ltd were instructed by Kad Properties Limited to carry out a Preliminary Ecological Appraisal (PEA) of the existing glasshouses and strip of land located to the South West of Street End Lane, Chichester. This was to identify any potentially important ecological features that may be affected by a proposed development on site. The objectives of the survey were as follows:

- Assess the ecological value of the site
- Identify any signs of protected species and potential features that may support them
- Make recommendations for further survey work as appropriate
- Recommend mitigation measures and enhancements where possible at this stage

NB If the development does not take place within 18 months of this report [1] then the findings of this survey will no longer be considered valid and may need to be updated.

1.2 Site Description & Location

The site comprises of a glass house and strip of land located to the South West of Street End Lane, Sidlesham, Chichester, PO20 7RG (centred on OS grid reference SZ8536199218) (**Fig 1**). The immediate wider environ is best described as arable fields to the west, Street End Lane to the east, a tree line separating the site from the B2145 to the south and three small farm buildings to the north. Residential houses associated with the town of Sidlesham are located further to the south east with a mosaic of arable land and industrial buildings in the other directions.

[1] https://cieem.net/wp-content/uploads/2019/04/Advice- Note.pdf

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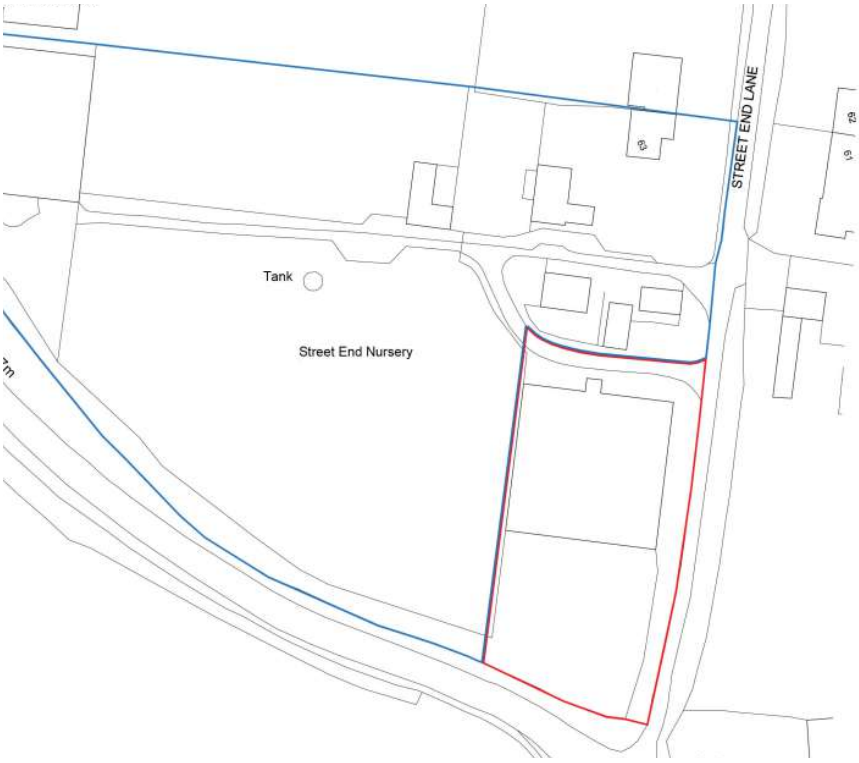
Figure 1. Redline location of the site with glasshouses noted (for ease of reference in subsequent section).



1.3 Proposed Development

The proposed development is for the demolition of the glasshouses and the subsequent erection of four holiday lets, totalling 475m2 with new access and associated landscaping (**Fig 2**).

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Figure 2. Proposed development plans.

2.0 RELEVANT LEGISLATION AND POLICY

2.1 Legislation

2.1.1 The Environment Act (2021)

The Environment Act 2021 is the UK's new legislation for environmental protection in the UK, which includes protection of water quality, clean air, and biodiversity among other key protections. This Act provides the government power to set targets to reach long-term aims relating to the environment, which will be periodically reviewed and updated. This legislation also establishes a new environmental watchdog organisation, the Office for Environmental Protection (OEP), which will hold the government accountable on environmental issues.

Part 6 of The Environment Act relates to nature and biodiversity. This section makes provision for biodiversity net gain to be a condition of planning permission in England and a requirement for nationally significant infrastructure projects. Biodiversity net gain will require maintenance for a period of at least 30 years after the completion of enhancement works to be achieved.

The legislation also includes updates to existing environmental legislation, such as the NERC Act 2006, to strengthen biodiversity enhancement rather than just conservation and includes a requirement for local, or relevant, authorities to publish biodiversity reports. Further, The Environment Act places a requirement on responsible authorities to prepare local nature recovery strategies, which will outline nature conservation sites and priorities and opportunities for recovering or enhancing biodiversity within the local area. Within England, the legislation also provides Natural England with the power to publish 'species conservation strategies' and 'protected site strategies' to identify activities that may affect a species or site's status and outline their opinions on measures that would be appropriate to avoid, mitigate or compensate any adverse impacts.

2.1.2 The Conservation of Habitats and Species Regulations 2017 (as amended)

The Conservation of Habitats and Species Regulations 2017 transposes the EU Habitats Directive (Council Directive 92/43/EEC) into UK domestic law. It provides protection for sites and species deemed to be of conservation importance across Europe. It is an offence to deliberately capture, kill or injure species listed in Schedule 2 or to damage or destroy their breeding sites or shelter. It is also illegal to deliberately disturb these species in such a way that is likely to significantly impact on the local distribution or abundance or affect their ability to survive, breed and rear or nurture their young.

The Conservation of Habitats and Species Regulations 2019 (EU Exit) makes changes to the three existing instruments which transpose the Habitats and Wild Birds Directives so that they continue to work (are operable) upon the UK's exit from the European Union (EU). These include The Conservation of Habitats and Species Regulations 2017 and The Conservation of Offshore Marine Habitats and Species Regulations 2017. This instrument also amends section 27 of the Wildlife and Countryside Act 1981 to ensure existing protections continue. The

Ecosupport Ltd K4 Keppel, Daedalus Park, Daedalus Drive, Lee-on-the-Solent, Hampshire, PO13 9FX
T: 01329 832841 info@ecosupport.co.uk www.ecosupport.co.uk

intention is to ensure habitat and species protection and standards as set out under the Nature Directives are implemented in the same way or an equivalent way when the UK exits the EU.

In order for activities that would be likely to result in a breach of species protection under the regulations to legally take place, a European Protected Species (EPS) licence must first be obtained from Natural England.

2.1.3 The Wildlife and Countryside Act (1981) (as amended)

This is the primary piece of legislation by which biodiversity if protected within the UK. Protected fauna and flora are listed under Schedules 1, 5 and 8 of the Act. They include all species of bats, making it an offence to intentionally or recklessly disturb any bat whilst it is occupying a roost or to intentionally or recklessly obstruct access to a bat roost. Similarly, this Act makes it an offence to kill or injure any species of British reptiles and also makes it an offence to intentionally kill, injure or take any wild bird or to take, damage or destroy their eggs and nests (whilst in use or being built).

The Wildlife & Countryside Act (1981) states that it is an offence to 'plant or otherwise cause to grow in the wild' any plant listed in Schedule 9 art II of the Act. This list over 30 plants including Japanese Knotweed (*Fallopia japonica*), Giant Hogweed (*Heracleum mantegazzianum*) and Parrots Feather (*Myriophyllum aquaticum*).

2.1.4 The Countryside and Rights of Way Act (2000)

This Act strengthens the Wildlife & Countryside Act by the addition of "reckless" offences in certain circumstances, such as where there is the likelihood of protected species being present. The Act places a duty on Government Ministers and Departments to conserve biological diversity and provides police with stronger powers relating to wildlife crimes.

2.1.5 Natural Environment and Rural Communities Act (2006)

The Natural Environment and Rural Communities (NERC) Act 2006 requires that public bodies have due regard to the conservation of biodiversity. This means that Planning authorities must consider biodiversity when planning or undertaking activities. Section 41 of the Act lists species found in England which were identified as requiring action under the UK Biodiversity Action Plan and which continue to be regarded as conservation priorities under the *UK Post – 2010 Biodiversity Framework.*

2.1.6 Protection of Badgers Act

The Protection of Badgers Act (1992) relates to the welfare of Badgers (*Meles meles*) as opposed to nature conservation considerations. The Act prevents:

- The wilful killing, injury, ill treatment or taking of Badgers and / or
- Interference with a Badger sett
- Damaging or destroying all or part of a sett
- Causing a dog to enter a set and

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T: 01329 832841 info@ecosupport.co.uk www.ecosupport.co.uk

- Disturbing a Badger while it is occupying a sett

Provisions are included within the Act to allow for the lawful licensing of certain activities that would otherwise constitute an offence under the Act.

2.2 Policy

2.2.1 National

Section 15 of the National Planning Policy Framework (NPPF, 2021) 'Conserving and enhancing the natural environment' states that planning policies and decisions should contribute to and enhance the natural environment. They should do this by protecting and enhancing sites of biodiversity and minimising impacts on and providing net gains for biodiversity, including establishing coherent ecological networks.

The plan states to protect and enhance biodiversity plans should identify, map and safeguard components of local wildlife-rich habitats and wider ecological networks. This includes the hierarchy of international, national and locally designated sites of importance for biodiversity, wildlife corridors and stepping stones that connect them. Plans should identify the protection and recovery of priority species and opportunities for securing measurable net gains for biodiversity.

When determining planning applications, local planning authorities should apply the following principles:

- if significant harm to biodiversity resulting from a development cannot be avoided, adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused;
- development on land within or outside a Site of Special Scientific Interest, and which is likely to have an adverse effect on it (either individually or in combination with other developments), should not normally be permitted. The only exception is where the benefits of the development in the location proposed clearly outweigh both its likely impact;
- development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons and a suitable compensation strategy exists; and

- development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to improve biodiversity in and around developments should be integrated as part of their design, especially where this can secure measurable net gains for biodiversity or enhance public access to nature where this is appropriate.

Ecosupport Ltd K4 Keppel, Daedalus Park, Daedalus Drive, Lee-on-the-Solent, Hampshire, PO13 9FX
T: 01329 832841 info@ecosupport.co.uk www.ecosupport.co.uk

2.2.2 Local – Chichester District Council (2015) 'Chichester Local Plan: Key Policies 2014 - 2029'

Chichester's Local Plan recognises that the natural environment is a key factor in terms of attracting residents, investment and tourism to the area and that one of these key environmental assets is biodiversity. The Plan seeks to protect and enhance the environmental assets, whilst allowing development in areas where potential environmental harm is minimal or can be adequately mitigated.

Countryside protection policies and the development of green infrastructure will provide links both for wildlife and for residents and help to protect the separate identity and distinct character of individual settlements.

The Plan emphasises that both Chichester and Pagham Harbour are internationally recognised sites of nature conservation importance, subject to a high level of environmental protection under European Union and UK legislation. Along with the Medmerry Realignment which is subject to the same protection as designated European sites.

All new developments are encouraged to take account of and incorporate biodiversity into their features at the design stage. Policy 49 protects sites of biodiversity importance, which contain wildlife features that are of special interest. Exceptions will only be made where no reasonable alternatives are available and the benefits of development clearly outweigh the negative impacts. Where a development proposal would result in any significant harm to biodiversity and geological interests that cannot be prevented or mitigated, appropriate compensation will be sought.

The Local Plan states that "Conserving biodiversity is not just about protecting rare species and designated nature conservation sites". It also encompasses the more common and widespread species and habitats. The Council will seek to preserve and enhance the biodiversity diversity of the district.

Policy 49 'Biodiversity' states that planning permission will be granted for development where it can be demonstrated that:

- The biodiversity value of the site is safeguarded;
- Demonstrable harm to habitats or species which are protected or which are of importance to biodiversity is avoided or mitigated;
- The proposal has incorporated features that enhance biodiversity as part of good design and sustainable development;
- The proposal protects, manages and enhances the District's network of ecology, biodiversity and geological sites, including the international, national and local

Ecosupport Ltd K4 Keppel, Daedalus Park, Daedalus Drive, Lee-on-the-Solent, Hampshire, PO13 9FX
T: 01329 832841 info@ecosupport.co.uk www.ecosupport.co.uk

designated sites (statutory and non-statutory), priority habitats, wildlife corridors and stepping stones that connect them;

- Any individual or cumulative adverse impacts on sites are avoided;
- The benefits of development outweigh any adverse impact on the biodiversity on the site. Exceptions will only be made where no reasonable alternatives are available; and planning conditions and/or planning obligations may be imposed to mitigate or compensate for the harmful effects of the development.

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3.0 METHODOLOGY

3.1 Desk Survey

3.1.1 Designated sites

A search for designated sites that may be impacted by the proposals was conducted using freely available online resources.

3.1.2 Waterbodies

Any ponds located within 250m of the proposed development were searched for using Ordnance Survey maps and available aerial images.

3.2 Field Survey

3.2.1 Habitats

The field survey work which forms the basis of the findings of this report was carried out on the 3rd May 2023 by Darla Brown BSc (Hons) and Amy Johnston BSc (Hons), Project Ecologists with Ecosupport Ltd. Weather conditions during the survey comprised temperatures of 16 ^{o}C, no winds and low cloud cover.

Habitats on site pre-development were identified in accordance with the categories specified for a UK Habitats survey, using Habitat Definitions Version 1.1 (UKHab Ltd., 2020). This was chosen as an appropriate habitat categorisation system as it fits within the Biodiversity Metric 4.0 calculation. Where appropriate primary habitat codes were used although for some habitat types, the use of secondary habitat codes was necessary as well.

3.2.2 Badger

The site was thoroughly searched for evidence of use by Badgers (*Meles meles*), with the specific aim of identifying the presence and location of any setts. In accordance with the *Badgers and Development: A Guide to Best Practice and Licensing* (Natural England, 2011) guidance, the survey covered the entirety of the site and a 30m radius from the site's boundary (observed where possible, i.e. not where conflicting with private dwellings). Evidence of Badgers could include latrines, dung pits, feeding remains and foraging evidence, trails and setts.

3.2.3 Bats

In addition to the habitat survey, a preliminary roost assessment of the glasshouses and any trees on site was also undertaken at the time of the walkover. This assessment was undertaken by Darla Brown BSc (Hons) and Amy Johnstone during the initial walkover survey. This followed BCT (Collins (ed) 2016) best practice survey guidelines searching for any Potential Roost Features / evidence of bat occupation and assigning a roost potential assessment as outlined in **Table 1** below.

Ecosupport Ltd K4 Keppel, Daedalus Park, Daedalus Drive, Lee-on-the-Solent, Hampshire, PO13 9FX
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Table 1. Guidelines for assessing the potential suitability of a built structures / trees for roosting bats (reproduced from BCT (Collins (ed) 2016.

Suitability	Description of Roosting Habitats
Negligible	Negligible habitat features on site are likely to be used by roosting bats
Low	A structure with one or more potential roost sites that could be used by individual bats opportunistically. However, these potential roost sites do not provide enough space, shelter, protection, appropriate conditions[2] and/or suitable surrounding habitat to be used on a regular basis or by a large number of bats (i.e. unlikely to be suitable for maternity or hibernation). A tree of sufficient size and age to contain PRFs but with none seen from the ground or features seen with only very limited roosting potential.
Moderate	A structure or tree with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions and surrounding habitat but unlikely to support a roost of high conservation status (with respect to roost type only – the assessments in this table are made irrespective of species conservation status, which is established after presence is confirmed).
High	A structure or tree with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions and surrounding habitat.

3.3 Assessment Methodology

3.3.1 Introduction

The methodology for the assessment of the likely ecological effects of the proposed development is based on CIEEM's *Guidelines for Ecological Assessment in the UK* (CIEEM, 2018). Although this assessment does not constitute a formal Ecological/Environmental Impact Assessment, the CIEEM guidelines provide a useful framework for assessing ecological impacts at any level.

3.3.2 Valuation

Features of ecological interest are valued on a geographic scale. Value is assigned on the basis of legal protection, national and local biodiversity policy and cultural and/or social significance.

[2] For example, in terms of temperature, humidity , height above ground level, light levels or levels of disturbance.

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3.4 Limitations

There were not considered to be any significant limitations on the results of the survey with the survey carried out as it was conducted inside the optimal season for flowering plants, under clear weather conditions. The pond was inaccessible due to being on private property but due to the unsuitability of the habitat connecting the pond to the site, the site is considered negligible potential for commuting GCN.

Ecosupport Ltd K4 Keppel, Daedalus Park, Daedalus Drive, Lee-on-the-Solent, Hampshire, PO13 9FX
T: 01329 832841 info@ecosupport.co.uk www.ecosupport.co.uk

4.0 ECOLOGICAL BASELINE

4.1 Desk survey

4.1.1 Designated Sites

The site is not located within 1km of any designated sites. However, it has been noted that the site falls within with 5.6km recreational zone of impact for Chichester Harbour SPA and within a nutrient impact area.

4.2 Habitats

The vegetation within the site has been described below using the UK Habs Habitat Definitions Version 1.1 (UKHab Ltd., 2020). The below species noted should not be considered an exhaustive list and instead refer to dominant, characteristic and other noteworthy species associated with each community within the survey area. The habitat types on site comprise:

- Modified Grassland (g4) with (17) ruderal / ephemeral, (66) frequently mown & (161) tall tussocky sward
- Lowland Mixed Deciduous Woodland (w1f)
- Line of Trees (w1g6)
- Buildings (u1b5)

4.2.1 Modified Grassland (g4) with (17) Ruderal / Ephemeral, (66) Frequently Mown & (161) Tall Tussocky Sward

This habitat was present surrounding the glasshouses and consisted of a short sward structure due to being frequently mown (secondary habitat code 161) (**Fig 3**). Furthermore, a parcel of grassland with a taller tussocky sward (secondary habitat code 161) consisting of ruderal / ephemeral species (17) was located towards the south of the site (**Fig 4**). Species noted surrounding the glasshouses were typical of modified grassland including Perennial Rye Grass (*Lolium perenne*), Daisy (*Bellis perennis*), White Clover (*Trifolium repens*), Red Dead Nettle (*Lamium purpureum*), Dandelion (*Taraxacum sp.*), Birdeye Speedwell (*Veronica persica*), Yarrow (*Achillea millefolium*), Creeping Buttercup (*Ranunculus repens*), Thyme Leaved Speedwell (*Veronica serpyllifolia*), Creeping Cinqufoil (*Potentilla reptans*). Within the modified grassland there was also a row of young Hawthorn (*Crataegus monogyna*) trees.

The south and south west areas of the site supported White Deadnettle (*Lamium album*), Common Fleabane (*Pulicaria dysenterica*), Cutleaf Geranium (*Geranium dissectum*), Nightshade (*Solanaceae*), Common Lungwort (*Pulmonaria officinalis*), Bluebell (*Hyacinthoides non-scripta*), Daffodil (*Narcissus pseudonarcissus*), and Alexander (*Smyrnium olusatrum*).

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Figure 3. The modified grassland to the east of the glasshouses (taken May, 2023).

Figure 4. The modified grassland at the south of the site (taken May, 2023).

4.2.2 Lowland Mixed Deciduous Woodland (w1f)

This habitat type covered almost half of the southern area of the site and had a dry ditch running from north to south. There was a dense understory consisting of Cow Parsley (*Anthriscus sylvestris*), Nettles (*Urtica dioica*), Bramble (*Rubus fruticosus*), Dandelion (*Taraxacum sp.*), Dock (Rumex spp.), Cow Parsnip (*Heracleum maximum*), Cleavers (*Galium aparine*) , Lesser Celandine (*Ficaria verna*), Field Horsetail (*Equisetum arvense*), Ivy (*Hedera helix*), Ground Ivy (*Glechoma hederacea*), Woodland Forget me not (*Myosotis sylvatica*), Spear Thistle (*Cirsium vulgare*), and Ragwort (*Jacobaea vulgaris*) (**Fig 5**). Tree species within the woodland included Field Maple (*Acer campestre*), Oak (*Quercus robur*), Sycamore (*Acer psuedoplatanus*), Holly (*Ilex aquifolium*), Field Elm (*Ulmus minor*).

Figure 5. Woodland located at the south of the site (taken May, 2023).

4.2.3 Line of trees (w1g6)

A line of trees was present along the southern border of the site separating the site from the main road and along the east of the site (**Fig 6**). Species present included Field Maple (*Acer campestre*), Sycamore (*Acer psuedoplatanus*), Beech (*Fagus sylvatica*).

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Figure 6. The line of trees to the east of the site (taken May, 2023).

4.2.4 Buildings (u1b5)

One building is located on site and this has been described in greater detail as part of the preliminary roost assessment in section **4.3** below.

4.3 Bats

4.3.1 Buildings

One large glasshouse of glass and metal construction was located on site. No PRFs or evidence of bats were identified and as such, the building is considered to be of ***Negligible potential*** for roosting bats.

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Figure 7. The glasshouse on site (taken May, 2023).

4.3.2 Preliminary Roost Assessment (Trees)

Although a full roost assessment of all trees was not undertaken at the time of the walkover, several trees within the line of trees located along the southern and eastern site boundaries, as well as trees within the woodland were noted as supporting multiple PRFs. Based on the relatively low number of PRFs, these were considered to be of ***Low*** roost potential, although these will not be affected by the proposals.

4.3.3 Foraging and Commuting Habitat

Whilst the site is largely dominated by modified grassland which offers limited forb diversity (and therefore will be of limited value to invertebrates), the site supports linear features in the form of tree lines which could be utilised by commuting and foraging bats. Furthermore, the small woodland area could also provide an important foraging area for any nearby roosts upon emergence. Taking the above into account the site is considered to be of ***Low - Moderate potential*** for foraging and commuting bats.

4.4 Badgers

During the walkover survey, no evidence of resident Badgers (i.e. sett) was noted on site and no evidence of foraging or commuting activity noted either. Notwithstanding this, the site does support larger areas of short grassland connecting to nearby woodland and arable fields surrounding the site and can therefore be considered ***suitable*** for foraging and commuting Badgers.

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T: 01329 832841 info@ecosupport.co.uk www.ecosupport.co.uk

4.5 Great Crested Newts

There was a single pond noted within 250m of the site which was inaccessible for valuation due to being located on private property. However, connecting habitats between the site and the pond consisted of hardstanding and is deemed unsuitable for terrestrial GCN and therefore, the site is considered to be of ***Negligible potential*** for this species.

4.6 Reptiles

The majority of the habitats on-site can be considered to offer limited potential for reptiles as the main grassland areas dominating the site lacks the structure (through frequent mowing) typically favoured by reptiles (Edgar et al., 2010). Notwithstanding this, there are some areas of more structured grassland present at the south of the site, as well as good connectivity to the wider environment. As such, these areas would be considered to offer ***Moderate potential*** for common reptiles.

4.7 Hazel Dormouse

The lines of trees and woodland connecting to nearby hedgerows in the wider environment can be considered to provide suitable habitat for Dormouse as they are well established and formed by a variety of different native species of known benefit to Dormice (as per Bright et al., 2006). These features would provide a protracted source of food throughout the year and the site benefits from linkages into a wider network of hedgerows connecting to nearby woodland parcels. Based on the nature of the habitats on and adjacent to the site, the site is considered to be of ***Low potential*** for Dormice, however, all woodland and trees are to be retained and as such the area of impact is considered to be ***Negligible***.

4.8 Breeding and Nesting Birds

The woodland, scrub and tree line offer opportunities for nesting birds on-site. Therefore there is ***Moderate potential*** to support breeding and nesting birds on site (although none of the potentially suitable habitat will be impacted upon).

Ecosupport Ltd K4 Keppel, Daedalus Park, Daedalus Drive, Lee-on-the-Solent, Hampshire, PO13 9FX
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5.0 LIKELY ECOLOGICAL IMPACTS IN ABSENCE OF MITIGATION

5.1 Introduction

CIEEM guidelines (2018) require that the potential impacts of the proposals should be considered in absence of mitigation. In order for a significant adverse effect to occur, the feature being affected must be at least of local value. However, in some cases, features of less than local value may be protected by legislation and/or policy and these are also considered within the assessment. Although significant effects may be identified at this stage of the assessment, it is often possible to provide appropriate mitigation.

5.2 Site Preparation and Construction

5.2.1 Impacts to Habitats

The works will take place mostly within the footprint of the existing glasshouse and modified grassland on the site. Therefore, the habitats on site are only considered to be of ***site*** value. Works will however take place near to the line of trees and woodland which are features of local value and could be impacted upon by root zone compaction. Therefore, works would have the potential to have a ***minor - moderate adverse impact*** to habitats of ***site – local value*** only.

5.2.2 Impacts to Wildlife

The site offers suitable foraging and commuting habitats for Badgers. In the absence of mitigation, the works could lead to potential for disturbing foraging and commuting Badger and other small mammals such as Hedgehogs on site. Additionally, any excavations left open on site could cause them to become trapped. Therefore, an ***adverse impact is possible*** at the ***local level*** if foraging and commuting Badger or Hedgehogs are present.

Although it is not anticipated to be affected by the proposals, the taller areas of grassland at the south of the site has been assessed as offering moderate suitability for reptiles. This has the potential to cause harm, or even death of common reptile species which may be present on site. Therefore, in the absence of mitigation an ***adverse impact is possible*** at the ***local level***, if reptiles are present.

5.3 Site Operation

5.3.1 Impacts to Wildlife

The proposals entail the creation of holiday lets and as such, there may be an increase in lighting within the general area from external lights on the buildings. This can affect the behaviour, particularly foraging, of nocturnal wildlife. Therefore, an ***adverse impact is likely*** on nocturnal species at a ***local level***.

5.3.2 Impacts to Designated Sites

The proposals entail the creation of holiday lets which will result in an increase of overnight accommodation. As the site has been identified as within a nutrient impact area, the site may

result in an increase of nitrogen in the Solent SPAs. Therefore, there is a ***potential adverse impact*** on sites of ***international importance.***

Ecosupport Ltd K4 Keppel, Daedalus Park, Daedalus Drive, Lee-on-the-Solent, Hampshire, PO13 9FX
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6.0 RECOMMENDATIONS

6.1 Introduction

The below sections outline a number of mitigations, compensation and enhancements to both mitigate and protect the existing features of value from potential impacts and provide enhancements post development.

6.2 Bats

As 3 new buildings are proposed to be erected, sensitive lighting for bats must be considered, in particular areas facing the woodland, south of the site.

A document (*Guidance Note 08/18 Bats and Artificial Lighting in the UK*) has been produced via a collaboration between the Institute of Lighting Professionals (ILP) and the Bat Conservation Trust (BCT), which outlines the latest recommendations to minimise the impacts of increased artificial lighting on bats. The key recommendations within this document have been outlined below and will be implemented provided there are no conflicts with any legal limits of illumination (in which case a suitable compromise should be reached).

'Luminaires come in a myriad of different styles, applications and specifications which a lighting professional can help to select. The following should be considered when choosing luminaires:

- *All luminaires should lack UV elements when manufactured. Metal halide, fluorescent sources should not be used. LED luminaires should be used where possible due to their sharp cut-off, lower intensity, good colour rendition and dimming capability.*
- *A warm white spectrum (ideally <2700Kelvin) should be adopted to reduce blue light component.*
- *Luminaires should feature peak wavelengths higher than 550nm to avoid the component of light most disturbing to bats (Stone, 2012).*
- *Internal luminaires can be recessed where installed in proximity to windows to reduce glare and light spill.*
- *The use of specialist bollard or low-level downward directional luminaires to retain darkness above can be considered. However, this often comes at a cost of unacceptable glare, poor illumination efficiency, a high upward light component and poor facial recognition, and their use should only be as directed by the lighting professional.*
- *Column heights should be carefully considered to minimise light spill.*
- *Only luminaires with an upward light ratio of 0% and with good optical control should be used – See ILP Guidance for the Reduction of Obtrusive Light.*
- *Luminaires should always be mounted on the horizontal, i.e. no upward tilt.*
- *Any external security lighting should be set on motion-sensors and short (1min) timers.*
- *As a last resort, accessories such as baffles, hoods or louvres can be used to reduce light spill and direct it only to where it is needed* (**Fig 8**).'

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Figure 8. (a) Shield 'barn doors' (b) cowl hood; (c) shield and; (d) external louvre Images from ILP (2011).

6.3 Badgers

As the site offers potential for foraging and commuting Badgers, the following mitigation steps are required. During the construction phase, any open excavations left overnight will either be covered to prevent falling in or escape ladders will be used to prevent them from becoming trapped. Further to this a walkover of the site to check for any evidence of badger setts will be undertaken no earlier than 2 weeks before works commence.

6.4 Woodland and Grassland South of the Development

As the southern grassland and woodland parcel has the potential to support roosting bats, reptiles, Hazel Dormouse, and nesting birds, it is recommended this area is retained. If not, the following mitigation steps will be required.

6.4.1 Protection of Retained Trees / Hedgerows

Any existing trees / woodland that is to be retained should be protected from damage during the works. All the trees / woodland should be fenced using Heras fencing or similar to prevent access by machinery. Where trees are present, they should be protected using standard arboriculturally tree protection measures which include protection of the canopy and prevents root compaction.

6.4.2 Roosting Bats

The BCT guidelines (Collins (ed) 2016) suggest the following procedures when dealing with trees that have low suitability for roosting bats (i.e. one or two PRFs):

'Where there are low suitability PRF's, precautionary measures may be appropriate during felling / pruning activities'.

To this end, an updated walkover of any trees affected by the proposals will be required and any trees identified as being of ***low*** roost potential will have the features soft felled under the supervision of any ecologists to ensure there are no bats present. If any bats are encountered, works will stop, and Natural England will be consulted.

6.4.3 Reptiles

The unmanaged areas of grassland present at the south of the site has been assessed as having the potential to support common reptiles. If this area is affected by the proposals, it is therefore recommended that a suite of reptile presence/likely absence surveys be completed. This would involve the laying of artificial refugia within areas of suitable habitat and checking the refugia on seven occasions between March and mid-October (optimal survey season April, May and September) in suitable weather conditions.

If this area of habitat will be retained, it will be protected during the construction works by fencing, such as heras fencing, to ensure protection of reptiles from machinery.

6.4.4 Hazel Dormouse

Based on the current proposals, it is not anticipated there will be any significant areas of potentially suitable Dormouse vegetation that will require removal. Notwithstanding this, accounting for the suitability of the habitat on site and in the wider area, the following precautionary approach will be adopted if the woodland and / or line of trees at the south of the site are affected by the proposals:

Prior to clearance commencing, 3 Dormouse nest boxes will be installed through any retained vegetation, to increase the carrying capacity of the retained habitats for Dormice. These will also act as receptors for any Dormice found during the sensitive clearance works (outlined below).

All habitat clearance will adopt the following methodology:

- Fingertip search of all vegetation to be cleared, by the licenced ecologist, immediately prior to clearance commencing (on the same day and every day clearance occurs). ***If any Dormice are found, works will cease and Natural England consulted.***
- The licenced ecologist will deliver a toolbox talk to the vegetation clearance contractors, detailing the sensitive measures required. The ecologist will then supervise all vegetation clearance. No clearance will be undertaken without the supervision of the ecologist.
- Hand tools will be utilised to sensitively cut vegetation down to ground level in **a single stage**. This will be undertaken in a directional fashion to passively encourage

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Dormice to move away from the works area towards retained, suitable habitats (i.e SNCI woodland). All arisings will be moved away from the cleared areas immediately to an area of within the central part of the site, and will then be chipped and immediately removed from site.

- In the unlikely event of any Dormice being discovered (within areas where they cannot be let in situ), they will be moved (along with their nest) into one of the nest boxes.
- No more than 50 m^2 of habitat will be cleared in a single day and works will take place during mid-April - mid-May or during October to avoid the breeding period (but ensure works are done during a tie when Dormice are active).

6.4.5 Breeding and Nesting Birds

In order to avoid disturbance of nesting birds or damage to their nests, the clearance of any trees / shrubs should be undertaken outside of the bird nesting season (typically March – August, dependent on weather). If this is not possible, the area to be cleared should be thoroughly checked by an ecologist immediately prior to clearance. If any active nests are found, they should be left undisturbed with a suitable buffer of undisturbed vegetation (ca. 5m) until nestlings have fledged.

6.5 Designated Sites

6.5.1 Nutrient Budget Calculation

Due to the site falling within a nutrient impact area, a nutrient budget calculation will be carried out (as per Natural England methodology) to determine if the site will result in an increase in nitrogen from the proposed development. Any increase will require mitigation.

6.5.2 Recreational Impacts on Chichester and Langston Harbour SPA

The site lies within the vicinity of the recreational zone of influence for the Chichester and Langstone Harbour SPA (1 of the 3 Solent SPAs). In order to mitigate for the likely increases in residential pressure upon this SPA, due to the high densities of wildfowl and waders for which the area is predominantly protected, the Solent Recreation Mitigation Strategy (SRMS) has been introduced in collaboration with Natural England, comprising a partnership of all local councils. Mitigation towards the SPA must be provided for all new recreational developments within the 5.6km disturbance zone of the SPA.

The simplest method of providing a necessary suitable and appropriate level of mitigation towards the SPAs associated with the Solent is via financial contributions. These contributions are used to enable the continued use of the coastline in a way that reduces the risks to the bird species of international importance that use the area, for example funding a team of rangers and implementing initiatives to encourage responsible dog walking (Solent Recreation Mitigation Partnership, 2014). It is considered that the contribution, in compliance with the recommendations presented within the SDMP, provides a suitable level of mitigation for the potential adverse impacts associated with the proposed scheme upon the Solent SPA.

In April 2023, the standard rates were updated to the following:

Number of bedrooms	Amount	5% monitoring fee	Administration fee	Total
1	£443	£22.15	£23	£488.15
2	£639	£31.95	£23	£693.95
3	£834	£41.70	£23	£898.70
4	£980	£49.00	£23	£1,052.00
5+	£1,150	£57.50	£23	£1,230.50

Therefore, a contribution will be made either prior to planning permission being granted, by completing the Agreement and sending the completed form along with mitigation contribution to the Planning Agreements Officer at the Local Planning Authority or by completing a Unilateral Undertaking before planning permission is granted with the per dwelling payment made before the development is implemented.

6.6 Enhancements

6.6.1 Planting

As a general enhancement, in line with the Chartered Institute of Ecology and Environmental Management CIEEM guidance (2012), any planting should aim for a 70:30 ratio in favour of native species over non-natives and ornamentals. Ideally fruit bearing trees, providing food sources for birds and small mammals during the autumn and winter and nest sites during the spring and summer, should be utilised. Species that should be considered include:

- Apple
- Hawthorn (*Crataegus monogyna*),
- Blackthorn (*Prunus spinosa*),
- Alder Buckthorn (*Frangula alnus*),
- Wild Cherry (*Prunus avium*),
- Elder (*Sambucus nigra*),
- Rowan (*Sorbus aucuparia*).

Shrubs to be considered within the landscape planting include:

- Holly (*Ilex aquifolium*),
- Dogwood (*Cornus sanguinea*),
- Privet (*Ligustrum vulgare*),
- Dog Rose (*Rosa canina*),

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- Guelder Rose (*Viburnum opulus*)

6.6.2 Bird / Bat Boxes

To act as biodiversity enhancement, each newly built commercial unit will include one Swift brick and one bat brick.

The 'CJ Wildlife swift maxi nesting box' (**Fig 9**) with entrance via a CJ Wildlife 'Cambridge swift full face brick' (**Fig 10**) is recommended as it provides ideal nesting opportunities for swifts and the full face brick is available in different colours and can also be painted if necessary to blend in with the surrounding brickwork. If this model is not suitable for the building specifications, an alternative swift box with internal floor space exceeding 400cm squared must be used. A list of swift boxes can be found on the RSPB website via the following link (https://www.rspb.org.uk/globalassets/downloads/about-swifts/swift-bricks.pdf) however it is worth noting that some of these do not have an internal floor space exceeding 400cm squared and are therefore not considered appropriate.

Figure 9. CJ Wildlife swift maxi nesting box will be integrated into the new commercial units.

Figure 10. Cambridge swift full face brick will be integrated into the new commercial units.

The bat brick used should be the ibstock bat brick B as they are available in a variety of different brick colours and requires no maintenance (**Fig 11**). It should also be positioned as close to the eaves as possible, away from windows and in a position that will receive direct sunlight.

Figure 11. The Ibstock bat brick 'B' that will be incorporated into the new commercial units.

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